

MISSOURI WATERFOWL STATUS, 2004

Wetland habitat conditions and waterfowl populations have gone from record low to record high levels during the last decade. Hunting opportunity and harvest also “raised the bar” of hunter expectations. Following is a summary of last year’s waterfowl season and the outlook for 2004. The report is divided into 6 primary sections:

- 1) a review of the 2003-04 hunting season,**
- 2) the status of duck habitat and populations in 2004,**
- 3) the status of goose populations and production,**
- 4) issues affecting hunting regulations in 2004,**
- 5) factors considered when recommending hunting seasons for Missouri,**
- 6) the outlook for the 2004 season.**

A more complete summary of waterfowl status is available at:

<http://migratorybirds.fws.gov/reports/reports.html>

The Missouri waterfowl status report is available on the Missouri Department of Conservation web site at:

<http://www.conservation.state.mo.us/hunt/wtrfowl>

Throughout the fall / winter this web site provides up-to-date migration and hunting status in Missouri and other waterfowl hunting formation.

We thank the U.S. Fish and Wildlife Service, the Canadian Wildlife Service, other State and Provincial conservation agencies, Missouri Department of Conservation wetland area managers, and Missouri hunters for information used in this report.

2003-04 HUNTING SEASON IN REVIEW

Waterfowl hunting opportunity in Missouri began with the September teal season and continued through January (Table 1). Missouri duck seasons were 60 days in length for the 7th consecutive year in each of the three zones. As in recent years, and in response to hunters’ preferences for later seasons, the 2003-04 and 2002-03 season structures were the latest since the 1958 statewide season of 70 days (24 October to 1 January). The South Zone closure of 20 January (21 January in 2002-03) was the 2nd latest among modern duck seasons.

For the 2nd consecutive year Canada goose hunters could hunt for a total of 77 days. The additional days allow for the early season harvest of resident Canada geese without putting

additional pressure on interior populations of Canada geese. As in years past, the Canada goose season structure allowed only 30 days after 30 November in the North, Middle, and Swan Lake Zones. In response to hunter preference for late season hunting opportunity in the Middle Zone, we delayed opening the third segment from 21 December in 2002-03 to 27 December in 2003-04. We will continue to conduct post-season harvest surveys to evaluate hunter season date preferences. The challenge will be to continue to monitor hunters' preferences for seasons and amend seasons based on population status and hunter attitudes.

Table 1. 2003-04 Waterfowl Seasons.

Zone	Youth Hunt	Ducks	Canvasbacks and Pintails	Canada Geese and Brant	White-fronted Geese	Snow/ Blue/ Ross's Geese
NORTH	10/18-10/19	10/25-12/23	10/25-11/23	9/27-10/12 10/25-11/23 12/20-1/18	10/25-1/18	10/25-1/18
MIDDLE	10/25-10/26	11/1-12/30	11/1-11/30	9/27-10/12 11/1-11/30 12/27-1/25	11/1-1/25	11/1-1/25
SOUTH	11/15-11/16	11/22-1/20	11/22-12/21	10/04-10/12 11/22-1/25	11/1-1/25	11/1-1/25
SWAN LAKE	SAME AS NORTH	SAME AS NORTH	SAME AS NORTH	10/25-11/30 12/20-1/18	SAME AS NORTH	SAME AS NORTH
SOUTH- EAST	SAME AS MIDDLE	SAME AS MIDDLE	SAME AS MIDDLE	SAME AS SOUTH	SAME AS SOUTH	SAME AS SOUTH
The Conservation Order for light geese will be in effect from 19 January-30 April, 2004 in the North and Swan Lake Zones, and from 26 January-30 April, 2004 in the Middle, South and Southeast Zones. Snow, blue, and Ross's geese only may be taken during the Conservation Order. Shooting hours are ½ hour before sunrise to ½ hour after sunset during the Conservation Order.						

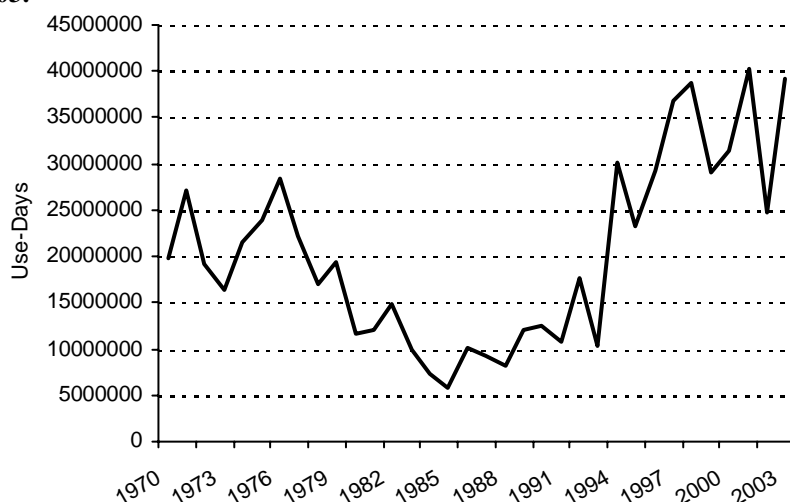
Weather, Habitat and Migrations:

Fall 2003 was characterized by warm temperatures, dry conditions and poor habitat conditions early, followed by periods of colder temperatures, rain and snow events, and generally improved habitat conditions by late season. Despite early season concerns about availability of water for pumping, most wetland areas had adequate water available for managed flooding. Natural food and crop conditions were fair to good on most wetland areas. Timely migrations in early season combined with mild conditions late resulted in hunting opportunity throughout the entire duck season. Hunting on managed public and private areas was good throughout the season and was good throughout the state in late season when habitat conditions improved.

September rains brought moderate relief from very dry conditions experienced throughout the summer in much of Missouri with the exception of Northwest Missouri. October temperatures were slightly above normal and precipitation was slightly below normal. November was the 21st warmest in the last 109 years with two periods of cold weather occurring between 6-8 November and during the last week of November. Precipitation was highly variable in November. Southeast Missouri received 6-7" of rain causing several rivers to exceed floodstage, some portions of Northwest Missouri received 3-5" and other portions less than 1-inch. Overall,

November was the 24th wettest in the last 109 years. Habitat conditions improved greatly in late December. A winter storm moved through Missouri on 10 December and brought much needed precipitation to West, Northwest, and Northcentral Missouri. Moderate rains were followed by colder temperatures and 2"-6" of snow in West Missouri. In the northern two-thirds of the state, most shallow-water was ice-covered from 10 December through 18 December. Temperatures rebounded and during the last week of December much of the state experienced near record temperatures in the 60s. Precipitation was again received on December 22 and 23, with light amounts in the Northwest and Southeast and up to 2" received in some portions of Westcentral and Central Missouri. December was the 28th warmest and 18th wettest in the last 109 years. Three significant storm systems moved through the Midwest in January and brought combinations of rain, freezing rain, sleet, and up to 6" of snow into portions of Missouri. Minimum temperatures dropped below zero over much of northern Missouri on the 5th and 6th which forced many birds from shallow water habitats, or small ponds and lakes, to large rivers and reservoirs. By 7 January most shallow water habitat was ice-covered in Missouri. Temperatures fluctuated around freezing for the remainder of the season in the South Zone. Overall, January precipitation and temperatures were near normal.

Figure 1. Duck Use-days on State & Federal Wetland Areas in Missouri, 1970-2003.



Initial influx of blue-winged teal in August and additional flights during September teal season were consistent with long-term average migration timing. The departure of blue-winged teal and the primary arrivals of early migrant dabblers including gadwalls, pintails, wigeon, and green-winged teal occurred gradually from 9-16 October. Mid-October duck

numbers (167,400) were higher than in 2002 (129,500), but lower than 2001 (202,000).

A minor migration event on 1 November and a more substantial migration on 6-7 November led to the departure of many early season migrants, the arrival of more mallards, and an overall increase in duck numbers from 167,500 on 21 October to 598,900 on 10 November (compared to 355,200 on 4 November 2002). Minor duck migrations from 12-15 November and a significant migration event on 22-23 November resulted in the highest survey total of the year at 654,400 ducks on 24 November (compared to 370,000 on 18 November 2002). By 8 December 2003, statewide duck numbers dropped slightly to 571,400 (compared to 396,000 on 4 December 2002) with some redistribution of birds from North Missouri to South Missouri. Redistribution of birds from shallow water habitat to remaining open water in North Missouri and from North Missouri to South Missouri continued in mid-December when much of the shallow water habitat in northern Missouri was frozen. However, statewide numbers did not decline (577,900 on 22

December). When shallow water habitat thawed in late December, ducks returned to most state waterfowl areas and federal refuges with the exception of those located in Northwest Missouri. The 2003-04 Midwinter Waterfowl Survey during 5-9 January reflected duck numbers (574,900) substantially higher than 2002-03 (300,000), similar to 2001-02 (589,500), and within the range of the last 20 years (85,700-714,000).

Canada goose numbers continue the decline typical of the last decade. Only 1,175 Canada geese were surveyed at Swan Lake National Wildlife Refuge (NWR) and Fountain Grove Conservation Area (CA) during late October. Numbers decreased to <1,000 until late November when they rose to 1,240 and to a peak of 4,210 on 5 January. Statewide numbers improved in early January with traditional managed areas such as Swan Lake NWR, Fountain Grove CA, Schell-Osage CA, and Montrose CA all having small concentrations of geese. The tally of 126,100 Canada geese in the 2003-04 Midwinter Survey was similar to the total of 132,300 in 2002-03, and lower than 2001-02 (261,500).

The first significant migration of light geese occurred on 6-7 November and then numbers fluctuated throughout November and December. By 10 November, 232,700 light geese were observed in Missouri. Numbers steadily increased in North Missouri until a cold front moved through on 22-23 November. Numbers of light geese at Squaw Creek declined from over 300,000 to less than 50,000. We observed 165,900 light geese on Department areas and national wildlife refuges on 24 November, 347,800 on 8 December, 98,700 on 22 December, and 163,800 on 5-7 January. The overall number of snow geese observed during the 2003-04 Midwinter Waterfowl Survey was 467,200, down from 569,900 in 2002-03, and the record 892,200 observed during the 2001-02 Survey. The number of white-fronted geese observed during the 2003-04 Midwinter Survey (5,100) was similar to last year (5,600), but lower than 2001-02 (12,000).

Duck Harvest:

Mild weather and improved habitat conditions late in the season renewed interest in later duck seasons. Yet, the 60-day season, which spanned 88 days from the 25 October opening in the North Zone to the January 20 closure in the South Zone, included all major duck flights and the range of fall and winter weather conditions. Until precipitation occurred in mid to late December, ducks, hunting opportunity, and harvest were largely limited to traditional managed areas on public and private lands in much of Missouri. Southeast Missouri was the exception, where good habitat conditions existed through most of the season.

Estimates of duck harvest are based on two sources, a U.S. Fish and Wildlife Service (USFWS) survey and the Missouri Department of Conservation Waterfowl Post-season Harvest Survey. Typically, USFWS estimates and MDCs post-season harvest estimates are similar (see Appendix A) and we only report the USFWS estimates. In 2003, the U.S. Fish and Wildlife Service implemented a new survey methodology and their preliminary estimates diverged greatly from our post-season survey estimates, so we report both estimates where possible.

Table 2. Missouri duck harvest (USFWS and MDC Harvest Survey Data).

Year	North Zone *	Middle Zone	South Zone	Statewide
1981-84	122,200** (52.5%)	96,500 (41.5%)	13,900 (6.0%)	232,600
1985-87	86,200 (49.3%)	82,400 (47.1%)	6,400 (3.6%)	175,000
1988-93	55,900 (53.5%)	43,000 (41.2%)	5,500 (5.3%)	104,400
1994-96	109,900 (55.7%)	74,800 (37.9%)	12,500 (6.3%)	197,200
1997	186,800 (51.0%)	142,200 (38.8%)	37,200 (10.2%)	366,200
1998	239,600 (52.3%)	167,100 (36.5%)	51,700 (11.3%)	458,400
1999	200,700 (62.2%)	79,700 (24.7%)	42,200 (13.1%)	322,600
2000	256,500 (56.8%)	98,600 (21.9%)	95,700 (21.2%)	450,800
2001	277,100 (60.1%)	114,500 (24.8%)	69,500 (15.1%)	461,000
2002***	74,700 (34.4%)	129,500 (59.6%)	13,100 (6.0%)	217,300
MDC 2002	--	--	--	392,600
2003***	NA	NA	NA	433,700
MDC 2003	--	--	--	472,000

* 3 zones since 1991 ** mean number and % of statewide harvest *** data are preliminary

Numbers of hunters participating in the 2003-04 season (37,079 vs. 34,822 in 2002-03), trips per hunter (8.4 vs. 7.2 in 2002-03), and average daily success (1.52 vs. 1.67 in 2002-2003) combined to result in a 2003-04 duck harvest of 472,000 (433,700 USFWS estimate) up from the previous record of 445,900 in 2001-02 and the harvest of 392,600 in 2002-03. The large harvest was the product of few hunting days limited by weather, and opportunity to hunt much of the 60-day season. On Department areas, hunters broke the previous record harvest of 65,700 ducks (38,134 trips) set in 2001-02 with a harvest of 77,400 ducks (39,855 trips) (Figure 2). Hunters averaged 1.94 ducks per trip, which was slightly higher than last year (1.76), but lower than the high of 2.09 set in 2000.

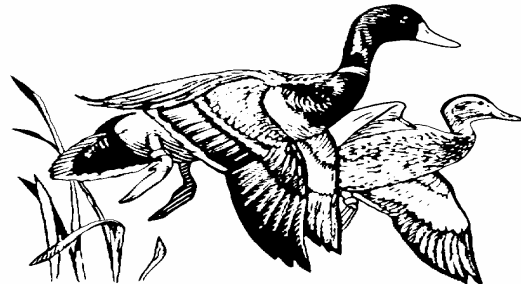
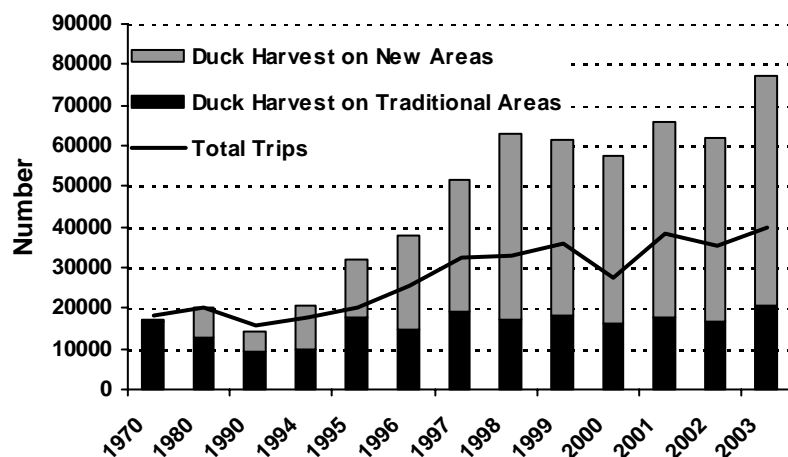


Figure 2. Numbers of Ducks Harvested on Missouri Department of Conservation Areas.



Traditional areas = Fountain Grove, Montrose, Duck Creek and Schell-Osage CAs

Hunters harvest only a small portion of the total number of ducks on Department areas and this proportion has not increased in recent years. The relationship between public area harvest and statewide harvest in 2003-04 (16.4% of a statewide total of 472,000) and 2002-03 (15.8% of a statewide total of 461,100) was similar to the average of 14.4% (range = 12.4-16.5%) from 1988-1997.

During dry years, Department areas with

water pumping capabilities typically account for a higher proportion of the statewide duck harvest than during wet years. For example, in 1999-00 (a dry season) 19.1% of the statewide harvest occurred on public areas compared to only 13.9% during the wet fall of 1998-99. Duck hunters harvested the most mallards and other duck species during the first two weeks of November (Figure 3). Harvest was high during this period due to a migration event on opening weekend in the Middle Zone and another migration event on 6 November. After a harvest lull in mid-November, it picked up again in association with migration events in late November. Harvest dropped slightly in mid-December when much of the shallow water habitat was ice covered, but improved in late December when temperatures moderated and precipitation improved habitat conditions.

Periods of peak harvest vary according to migration timing and habitat conditions (Figure 3, Figure 4, and Appendices C-E). In 2003, early season cold fronts ushered in substantial numbers of ducks and late season precipitation and moderate weather allowed them to stay throughout the 60-day season. In contrast, dry conditions in 2002 resulted in a decline in late season harvest even though open water was still available. In 2001, peak harvest occurred late due to mild conditions and in 2000 nearly all of the harvest occurred before cold temperatures pushed ducks south in early December. With a 60-day season in place, the periods of greatest harvest opportunity were included in all four years.

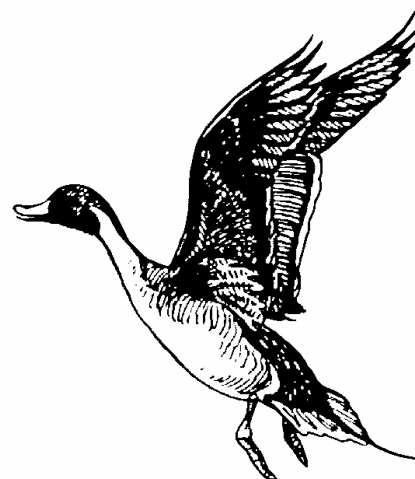


Figure 3. Duck harvest per day by 5-day periods, 2003-2004.

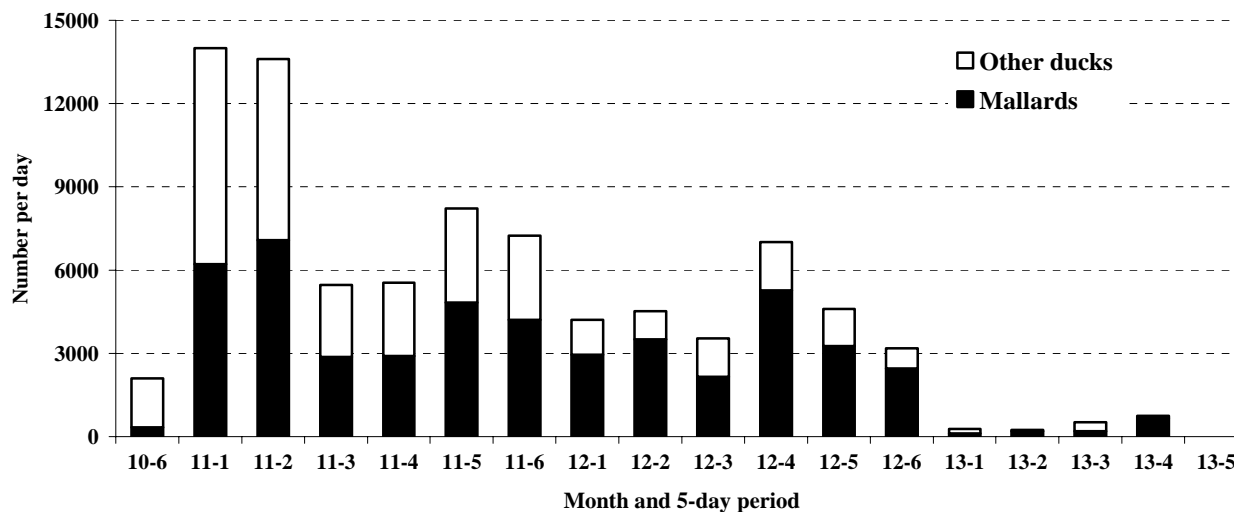
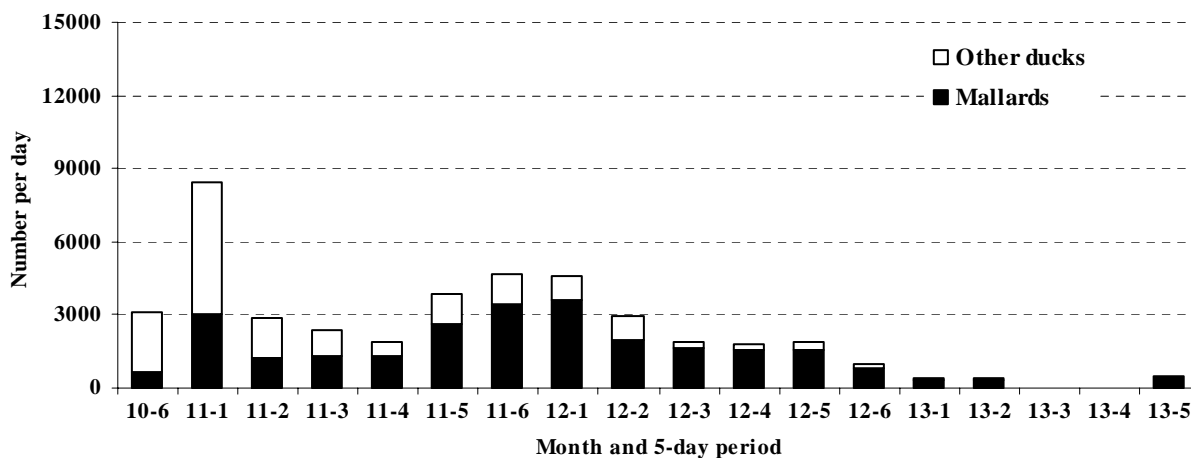


Figure 4. Duck harvest per day by 5-day periods, 2002-2003.



Canada Goose Harvest:

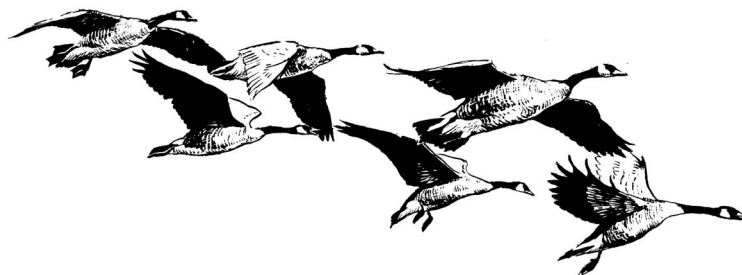
Canada goose harvest (56,384) was 2nd only to 2000 (76,300) in the last 10 years (Table 3). The large harvest was attributed to the migration of Canada geese into Missouri in association with the storm systems that moved through the Midwest in late December and early January. Population size, the number of geese banded, and band recoveries are used to derive the number of geese harvested, by population, from statewide Canada goose harvest estimates. According to these derivations, the proportion of giant Canada geese in the Missouri Canada goose harvest has increased from 14% during 1970-1974 to 80% during 2000-2002. The above estimates include giants produced in other states and harvested in Missouri. Approximately 38% of the statewide

Canada goose harvest is estimated to be comprised of giant Canada geese produced in Missouri. An additional 21% is comprised of giant Canada geese produced in Minnesota.

Table 3. Missouri Canada goose harvest (USFWS Harvest Survey Data).

Years	Swan Lake Zone	Southeast Zone	North Zone	Middle Zone	South Zone	Statewide
1970-74	35,100 (81.0%)	1,900 (4.4%)	4,900 (11.3%)	900 (2.0%)	500 (1.2%)	43,300
1975-79	52,700 (78.7%)	6,500 (9.7%)	4,200 (6.3%)	2,800 (4.2%)	700 (1.0%)	66,900
1980-86	27,900 (71.4%)	2,400 (6.1%)	4,400 (11.3%)	4,100 (10.5%)	300 (0.8%)	39,100
1987-89	18,000 (58.8%)	1800 (5.9%)	3,000 (9.8%)	5,800 (19.0%)	2,000 (6.5%)	30,600
1990-92	11,100 (36.6%)	4,700 (15.5%)	7,600 (25.1%)	6,600 (21.8%)	300 (1.0%)	30,300
1993-96	6,900 (15.0%)	7,200 (15.8%)	22,000 (48.3%)	8,500 (18.5%)	1,100 (2.4%)	45,700
1998	300 (1.2%)	2,300 (9.3%)	13,800 (56.1%)	1,600 (6.5%)	6,600 (26.8%)	24,600
1999	700 (2.0%)	2,400 (6.8%)	21,200 (59.7%)	6,100 (17.2%)	5,100 (14.4%)	35,500
2000	1,700 (3.6%)	4,500 (9.6%)	26,800 (56.9%)	7,000 (14.9%)	7,100 (15.1%)	47,100
MDC 2000						76,300
2001	3,100 (4.7%)	0	43,400 (64.3%)	16,000 (23.8%)	5,000 (7.3%)	68,600
MDC 2001						43,900
2002**	3,300 (13.1%)	274 (1%)	14,500 (57.6%)	4,900 (19.5%)	2,200 (8.7%)	25,200
MDC 2002	--	--	--	--	--	44,000
2003	--	--	--	--	--	18,500
MDC 2003	--	--	--	--	--	56,400

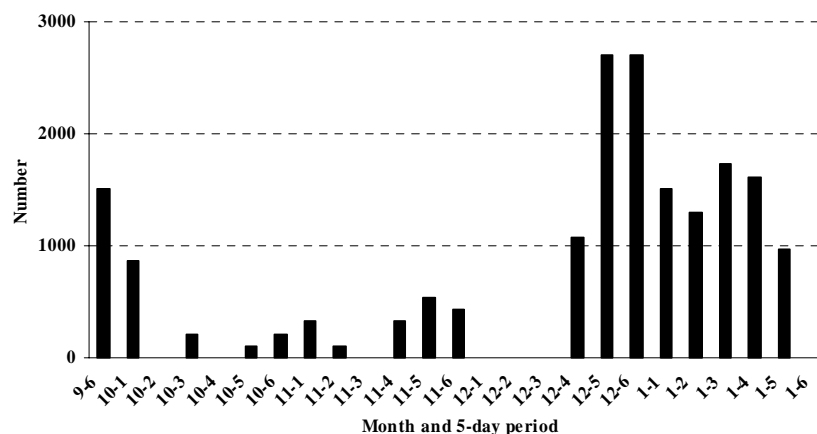
* mean number and % of statewide harvest ** Data are preliminary



The pattern of Canada goose harvest was the result of season timing as well as migration patterns. Early season hunting opportunity for giant Canada geese and late migrations into the state accounted for a bimodal appearance to the harvest distribution. The early season (September-early October) Canada goose harvest made up about 14% of the statewide

harvest, which was similar to 2002-03 (11%), but lower than the 20% harvested in the early season during 2001 (Figure 5). Approximately 11% (vs. 15% in 2002-03) of the Canada goose harvest took place from the beginning of duck season until the end of November, and 75% (vs. 74% in 2002-03) took place after 30 November.

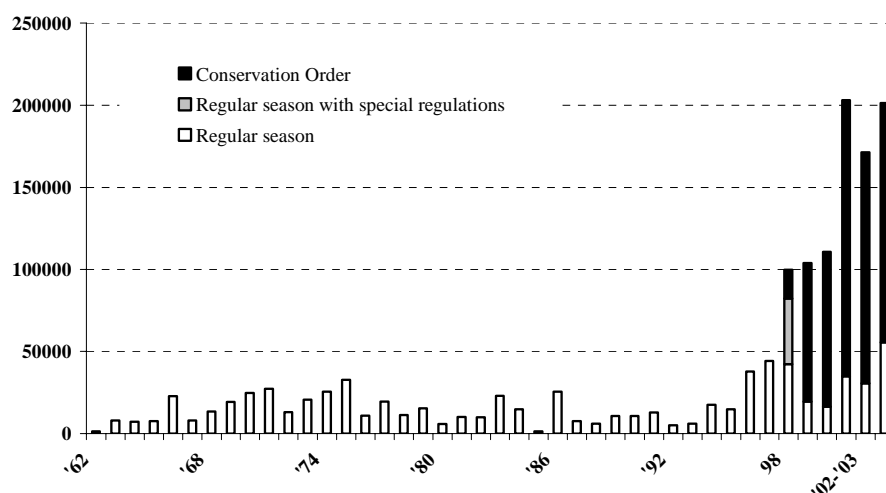
Figure 5. Canada goose harvest by 5-day periods in 2003-04 (FWS Harvest Survey).



Light Goose Harvest:

More liberal light goose hunting regulations after the mid-1990s and the availability of a Conservation Order beginning in February 1999 has resulted in a dramatic increase in the harvest of light geese in Missouri. The light goose harvest increased from an average of just over 11,000 during the early 1990s (regular hunting

Figure 6. Missouri light goose harvest: 1962-2004.



season) to a high of 203,200 total light geese harvested (regular season plus Conservation Order) during 2001-2002 (USFWS and MDC harvest estimates) (Figure 6). During the 2003-04 regular season, hunters harvested 55,500 snow geese compared to 30,600 in 2002-03. The snow goose harvest during the 2004 Conservation Order (145,800) was similar to 2003 (140,400).

White-Fronted Goose Harvest:

The harvest of white-fronted geese in the Mississippi Flyway nearly doubled from an average of

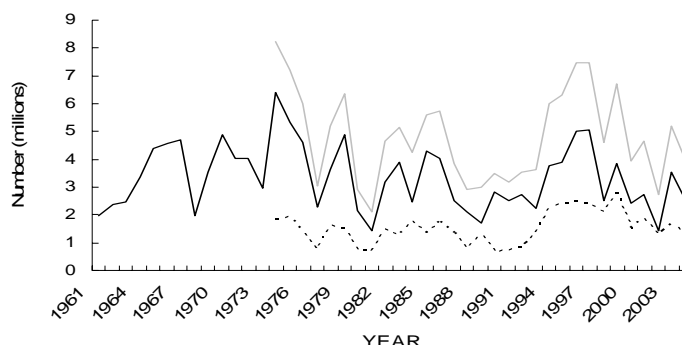
about 65,000 during the early 1990s to over 146,000 during 1999. Over 90% of this harvest occurred in the states of Louisiana and Arkansas. In Missouri, the harvest of white-fronted geese is low and unpredictable. The average harvest has dropped from 2,800 white-fronted geese during 1999-2000 to 1,013 during 2001-2003. The primary harvest appears to occur during late season in the Missouri Bootheel.

2004 DUCK AND HABITAT STATUS

Each year, extensive surveys of waterfowl and wetlands are conducted in May and July in primary breeding areas of the U.S. and Canada. Coverage of 1.3 million mi² in the spring provides information about breeding populations and the condition of wetlands in the Prairies, northern Canada, and Alaska. July surveys in much of the same area are the source for information about the numbers of ducks produced and the condition of habitat for duck broods.

Numbers of wetlands, termed “May ponds” and “July ponds,” reflect habitat conditions for duck pairs in the spring and duck broods in the summer, respectively. Projections of the mallard fall flight are based on historic relationships among breeding duck numbers, habitat conditions, adult survival, and expected fall age ratios and duck numbers. This year, the

Figure 7. Number of May ponds in the U.S. and Canadian Prairies



July survey was not conducted due to budget shortfalls, therefore information about habitat conditions and brood counts during July are limited.

Table 4. Percent change in habitat and population indices from 2003 (03) and the long-term average (LT) among breeding ground regions.

Region	May Ponds		Breeding Ducks		Mallards	
	vs 03	vs LT	vs 03	vs LT	vs 03	vs LT
E. Dakotas	-32%	-20%	+3%	+29%	+4%	+77%
W.Dakotas/MT	+25%	+15%	-7%	0%	-2%	-1%
S. Alberta	-7%	-30%	-7%	-42%	-4%	-46%
S. Saskatchewan	-32%	-26%	-38%	-22%	-24%	-23%
S. Manitoba	+10%	-20%	-7%	-5%	-22%	+5%

As a result, the number of May ponds in Prairie Canada and the northcentral U.S. declined (-24%) from 5.2 million during 2003 to 3.9 million during spring 2004 and was 19% below the long-term average. Compared with 2003, there were fewer ponds in Canada (-29%) and the U.S. (-16%) in spite of heavy snowfall in portions of the southern prairies on May 12-13.

Duck Habitat:

Reports of above average snowfall during winter 2003-2004 in portions of southern Canada raised expectations for improved wetland habitat conditions. However, dry soil conditions combined with warm, windy weather during April resulted in a poor frost seal and little runoff. As a